Washington State Institute for Public Policy

Benefit-Cost Results

Contingency management (higher-cost) for marijuana use

Benefit-cost estimates updated July 2015. Literature review updated May 2014.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our technical documentation.

Program Description: Contingency management is a supplement to counseling treatment that rewards participants for attending treatment and/or abstaining from substance use. The intervention reviewed here focused on those with drug and/or alcohol abuse or dependence (excluding those with a primary diagnosis of marijuana dependence) where contingencies were provided for remaining abstinent. Two methods of contingency management were reviewed: (1) A voucher system were abstinence earned vouchers that were exchangeable for goods provided by the clinic or counseling center, and (2) a prize or raffle system where clients who remained abstinent could earn the opportunity to draw from a prize bowl. Higher-cost contingency management was determined by maximum voucher or maximum expected value of prizes possible. Based on statistical analysis of contingency management studies, we determined that programs with a maximum value of vouchers or prizes greater than $500 (in 2012 dollars) represent higher-cost contingency management.

Benefit-Cost Summary

Program benefits	
Participants	$5,806
Taxpayers	$2,549
Other (1)	$100
Other (2)	($240)
Total	$8,215
Costs	($562)
Benefits minus cost	$7,653

Summary statistics	
Benefit to cost ratio	$14.61
Benefits minus costs	$7,653
Probability of a positive net present value	78 %

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2014). The economic discount rates and other relevant parameters are described in our technical documentation.

Detailed Monetary Benefit Estimates

Source of benefits	Benefits to Participants	Taxpayers	Other (1)	Other (2)	Total benefits
From primary participant					
Labor market earnings (cannabis abuse/dependence)	$5,782	$2,466	$0	$0	$8,249
Health care (cannabis abuse/dependence)	$23	$83	$100	$41	$247
Adjustment for deadweight cost of program	$0	$0	$0	($281)	($281)
Totals	$5,806	$2,549	$100	($240)	$8,215

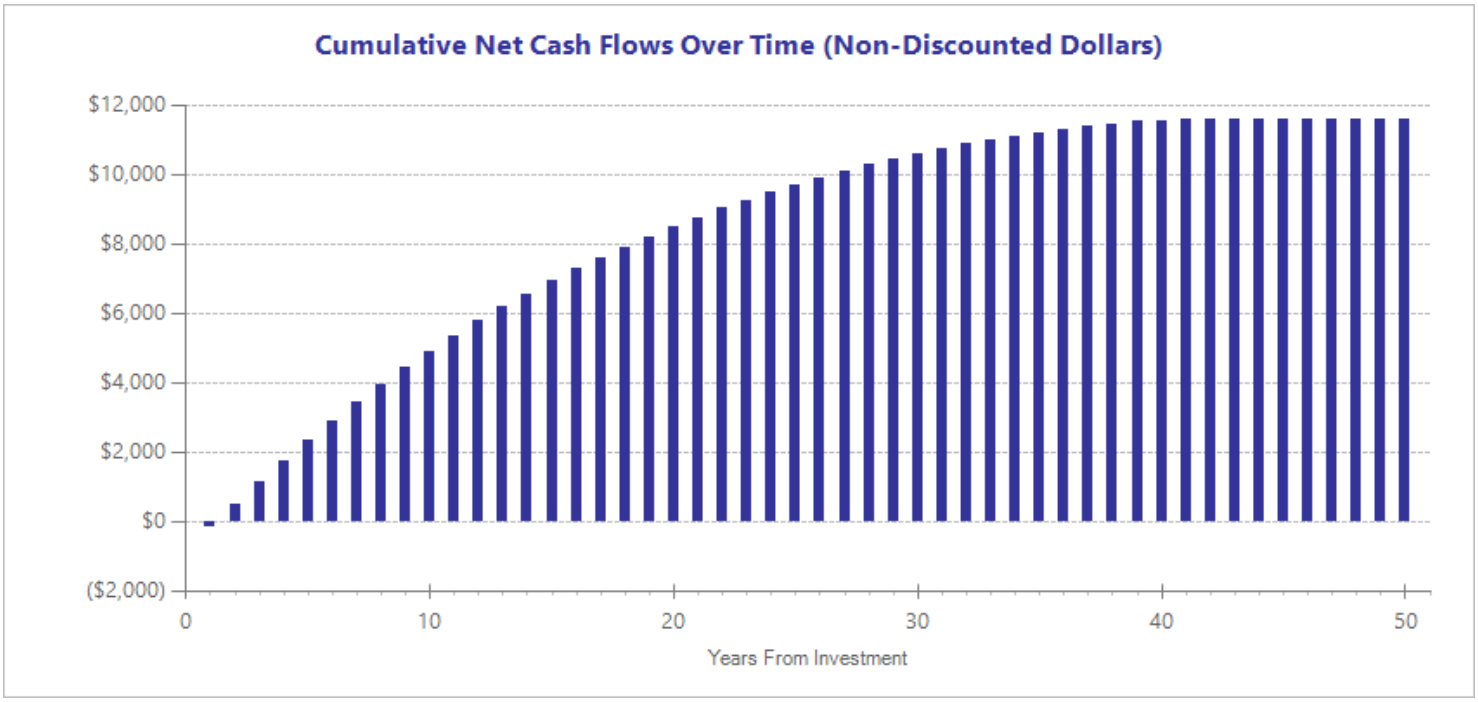
We created the two “other” categories to report results that do not fit neatly in the “participant” or “taxpayer” perspectives. In the “Other (1)” category we include the benefits of reductions in crime victimization, the economic spillover benefits of improvement in human capital outcomes, and the benefits from private or employer-paid health insurance. In the “Other (2)” category we include estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

Detailed Cost Estimates

	Annual cost	Program duration	Year dollars	Summary statistics	
Program costs	$548	1	2012	Present value of net program costs (in 2014 dollars)	($562)
Comparison costs	$0	1	2012	Uncertainty (+ or - %)	20 %

We calculated the weighted average of the variable treatment and comparison group costs across studies estimating the cost-effectiveness of an incentive program with an average cost of greater than $500 in 2012 (Olmstead & Petry, 2009; Olmstead, Sindelar, & Petry, 2007; Olmstead et al., 2007). Costs of administering the incentive program include staff costs to inventory, shop, and restock prizes; material cost of items; counseling session costs; and toxicology screens. All staff costs include salary, benefits, and overhead. All costs are calculated from the clinic perspective. Note that because treatment group participants have higher retention rates than the control group, costs also reflect the increased number of counseling sessions attended and urinalysis tests performed for the treated group. Olmstead, T.A., & Petry, N.M. (2009). The cost-effectiveness of prize-based and voucher-based contingency management in a population of cocaine- or opioid-dependent outpatients. Drug and Alcohol Dependence, 102(1), 108-115. Olmstead, T.A., Sindelar, J.L., & Petry, N.M. (2007). Cost-effectiveness of prize-based incentives for stimulant abusers in outpatient psychosocial treatment programs. Drug and Alcohol Dependence, 87(2), 175-182.Olmstead, T.A., Sindelar, J.L., Easton, C.J., & Carroll, K.M. (2007). The cost-effectiveness of four treatments for marijuana dependence. Addiction, 102(9), 1443-1453.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta analysis. The uncertainty range is used in Monte Carlo risk analysis, described in our technical documentation.



Meta-Analysis of Program Effects

Outcomes measured	Primary or secondary participant	No. of effect sizes	Treatment N	Unadjusted effect size (random effects model)		Adjusted effect sizes and standard errors used in the benefit-cost analysis					
						First time ES is estimated			Second time ES is estimated		
				ES	p-value	ES	SE	Age	ES	SE	Age
Cannabis abuse or dependence	Primary	4	116	-0.354	0.021	-0.354	0.154	26	-0.325	0.412	27

Citations Used in the Meta-Analysis

Carroll, K.M., Easton, C.J., Nich, C., Hunkele, K.A., Neavins, T.M., Sinha, R., . . . Rounsaville, B.J. (2006). The use of contingency management and motivational/skills-building therapy to treat young adults with marijuana dependence. *Journal of Consulting and Clinical Psychology, 74*(5), 955-966.

Budney, A.J., Higgins, S.T., Radonovich, K.J., & Novy, P.L. (2000). Adding voucher-based incentives to coping skills and motivational enhancement improves outcomes during treatment for marijuana dependence. *Journal of Consulting and Clinical Psychology, 68*(6), 1051-1061.

Budney, A.J., Moore, B.A., Rocha, H.L., & Higgins, S.T. (2006). Clinical trial of abstinence-based vouchers and cognitive-behavioral therapy for cannabis dependence. *Journal of Consulting and Clinical Psychology, 74*(2), 307-316.

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